SEQUENCE LISTING

      (1) GENERAL INFORMATION:

          (iii) NUMBER OF SEQUENCES: 23

      (2) INFORMATION FOR SEQ ID NO:1:

          (i) SEQUENCE CHARACTERISTICS:

              (A) LENGTH: 6689 bases

              (B) TYPE: nucleic acid

              (C) STRANDEDNESS: single

              (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA (genomic) human

          (ix) FEATURE:

              (A) NAME/KEY: AIPL1 gene

              (B) LOCATION: 17p13.1

              (D) OTHER INFORMATION: produces aryl-hydrocarbon receptor interacting protein-like 1

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

1

ggcctcccaa agtgctggat tacaggcgtg agtcaccgcg cctggtcccc tgtcttcttt

61

aagaaagctc agcggacctt tttccttctt ggggtggaac aaaaagccaa atctagcaca

121

accctgggca ggggcccaga atcactggaa gcaaaggtgg atgggatagg aggcgaggct

181

gcctgtggac cacaggcccg gcccgagtgg ctctgatgag aagccggggc gcctaggtca

241

ccgcccccac cgtctgccct tcccccact cctcctggct gggtaaatcc cagagtctca

301

gccgcctaag tgtcttcccc ggaggtgaga ttatctccgc ctgtgctgga cacctccctt

361

tctcctgcag ccatggatgc cgctctgctc ctgaacgtgg aaggggtcaa gaaaaccatt

421

ctgcacgggg gcacgggcga gctcccaaac ttcatcaccg atcccgagt gagtggggcc

481

cctccggagc agacagggtc ccccacagca gctttcaaca ttccaggtgt gccccaaggc

541

actgtaaaca gctttcagct gtgccaaaaa aacagccagg cagccccagc gctgggcctc

601

cggggagctc ccagcgttta cccattcagg gggcattttt ggtactttgc agattcaact

661

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721

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781

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841

cctgtaatcc cagcactttg ggaggccaag atgggcagat catgaggtca gagttcgag

901

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1021

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1081

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1141

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1201

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1501

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Page 78

1561

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1621

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2161

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Page 79

2581

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2761

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3001

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3541

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Page 80

3601

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3661

aatcccagct acttgggaat ttgaggcatg agaattgctt gaacctggaa gtggaggttg

3721

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3781

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3841

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3901

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3961

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Page 81

4621

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5281

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5341

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5521

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5581

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Page 82

5641

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5701

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6121

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6481

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6541

ggatagttac atttgggggt catctcggtg atttttgtaa ctttacgcag gacacttaga

6601

gctctctaga atcccactga ctttagtggg gtcttgatgt agggtgggca agccccgaca

Page 83

ctggagctta gcctgagagg ggttcttgc   6689

(2) INFORMATION FOR SEQ ID NO:2:

                    (i) SEQUENCE CHARACTERISTICS:

                        (A) LENGTH: 1119 bases

                        (B) TYPE: nucleic acid

                        (C) STRANDEDNESS: single

                        (D) TOPOLOGY: linear

                    (ii) MOLECULE TYPE: cDNA *Baboon*

                    (ix) FEATURE:

                        (A) NAME/KEY: AIPL1 gene

                        (B) LOCATION:

                        (D) OTHER INFORMATION: produces aryl-hydrocarbon
                        receptor interacting protein-like 1

                    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

atggatgccg ctctgctcct gaacgtggaa ggggtcaaga aaaccattct gcacggaggc

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aaatgtgatg aggagcgcac ggtcatcgac gacagccggc aggtggacca gcccatgcac

atcatcatcg ggaacatgtt caagctcgag gtctgggaga tcctgctcac ctccatgagg

gtgcacgagg tggccgagtt ctggtgcgac accatccaca cgggggtcta ccccatcctg

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tgcgggctgg ccaacatgtt cgcctaccac acactgggct acgaggacct ggacgagctg

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gattaccaga gggagacctg gaacctgagc aatcatgaga agatgaaggt ggtgcccgtc

ctccacggag agggaaatcg gctcttcaag ctgggccgct acgaggaggc ctcttccaag

taccaggagg ccatcatctg cctaaggaac ctgcagacca aggagaagcc atgggaggtg

cagtggctga agctggagaa gatgatcaac accctgaccc tcaactactg ccagtgcctg

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ccaggcatcg tgaaggccta ctatgtgcgt gcccgggctc acgcagaggt gtggaatgag

gccgaggcca aggcggacct ccagaaagtg ctggagctgg agccatccat gcagaaggcg

gtgcgcaggg agctgaggct gctggagaac cgcatggcag agaagcagga ggaggagcgg

ctgcgctgcc ggaacatgct gagccaggga gccacgcagc ctcccacaga gccaccggca

gagccccaca cagcaccacc tgcggagctg tccacagggc cacctgcaga gccacccgca

Page 84

gagctccccc tgtccccagg gcactcactg cagcactga

    (2) INFORMATION FOR SEQ ID NO:3:

        (i) SEQUENCE CHARACTERISTICS:

5

            (A) LENGTH: bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: cDNA *Chimpansee*

10

        (ix) FEATURE:

            (A) NAME/KEY: AIPL1 gene

            (B) LOCATION:

            (D) OTHER INFORMATION: produces aryl-hydrocarbon

            receptor interacting protein-like 1

15   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

tgtccgcagatggaatgctgcagatgatagtgacaagtgcaagcgggtgaagcaaaggaattctgctagcgggcactgaggcgagctcc

    (2) INFORMATION FOR SEQ ID NO:4:

        (i) SEQUENCE CHARACTERISTICS:

20

            (A) LENGTH: bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: cDNA *Cow*

25

        (ix) FEATURE:

            (A) NAME/KEY: AIPL1 gene

            (B) LOCATION:

            (D) OTHER INFORMATION: produces aryl-hydrocarbon

            receptor interacting protein-like 1

30   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

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Page 85

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    (2) INFORMATION FOR SEQ ID NO:5:

        (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: cDNA *Dog*

        (ix) FEATURE:

            (A) NAME/KEY: AIPL1 gene

            (B) LOCATION:

            (D) OTHER INFORMATION: produces aryl-hydrocarbon receptor interacting protein-like 1

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

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10   (2) INFORMATION FOR SEQ ID NO:6:

          (i) SEQUENCE CHARACTERISTICS:

               (A) LENGTH: bases

               (B) TYPE: nucleic acid

               (C) STRANDEDNESS: single

15   (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: cDNA *mouse*

          (ix) FEATURE:

               (A) NAME/KEY: AIPL1 gene

               (B) LOCATION:

20   (D) OTHER INFORMATION: produces aryl-hydrocarbon

               receptor interacting protein-like 1

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

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25 aagaacgcacggtgatcgatgacagcaagcaggtgggccagcccatgagcatcatcatcggcaac

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Page 87

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        (2) INFORMATION FOR SEQ ID NO:7:

            (i) SEQUENCE CHARACTERISTICS:

                (A) LENGTH: bases

10   (B) TYPE: nucleic acid

                (C) STRANDEDNESS: single

                (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: cDNA *Rhesus monkey*

            (ix) FEATURE:

15   (A) NAME/KEY: AIPL1 gene

                (B) LOCATION:

                (D) OTHER INFORMATION: produces aryl-hydrocarbon

                receptor interacting protein-like 1

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

20 atggatgccgctctgctcctgaacgtggaagggggtcaagaaaaccattctgcacggaggcacggg

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gaggcctcttccaagtaccaggaggccatcatctgcctaaggaacctgcagaccaaggagaagcc

30 gtgggaggtgcagtggctgaagctggagaagatgatcaacaccctgaccctcaactactgccagt

gcctgctgaagaaggaggagtattacgaggtgctggagcacaccagtgacattctccggcaccac

ccaggcatcgtgaaggcctactatgtgcgtgcccgggctcacgcggaggtgtggaacgaggccga

ggccaaggcggacctccagaaagtgctggagctggagccatccatgcagaaggcggtgcgcaggg

agctgaggctgctggagaaccgcatggcggagaagcaggaggaggagaggctgcgctgccggaac

atgctgagccagggagccacgcagcctcccgcagagccaccggcacagcccccccacagcaccacc

tgcagagctgtccacagggccacctgcggacccaccggcggagccccccacagcaccacctgcgg

agctgtccacagggccacctgcagagccacccgcagagctcccccctgtccccagggcactcactg

cagcactga

5

(2) INFORMATION FOR SEQ ID NO:8:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: bases

        (B) TYPE: nucleic acid

10
        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: cDNA *Squirrel monkey*

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 gene

15
        (B) LOCATION:

        (D) OTHER INFORMATION: produces aryl-hydrocarbon

        receptor interacting protein-like 1

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

atggatgccgctctgctcctgaacgtggaagggggtcaagaagaccattctgcacggggggcacggg

20
cgagctcccaaatttcatcaccggatcccgagtgatctttcatttccgcaccatgaaatgtgatg

aggagcggacggtgattgacgacagcagggaggtgggccagcccatgcacatcatcatcgggaac

atgttcaagctggaggtctgggagatcctgctcacgtccatgcgggtgcgagaggtggccgagtt

ctggtgcgacaccatccacacggggggtctaccccatcctgtcccggagcctgcggcagatggccc

agggcaaggacccgacggagtggcatgtgcacacgtgcgggctggccaacatgttcgcctaccac

25
acgctgggctacgaggacctggatgagctgcagaaggagcctcagcctctgatctttgtgatcga

gctgctgcaggttgatgccccaagtgattaccagagggagacctggaacctgagcaatcacgaga

agatgaaggtggtgcccgtcctccatggagaaggaaataggctcttcaagctgggccgctacgag

gaggcctcttccaagtaccaggaggccatcatctgcctaaggaacctgcagaccaaggagaaacc

ctgggaggtgcagtggctgaagctggagaagatgatcaataccctgatcctcaactactgtcagt

30
gtctgctgaagaaggaggagtactacgaggtcctggagcataccagtgacattctccggcaccac

ccaggcattgtgaaggcctactatgtgcgcgcccgggctcacgcggaggtgtggaacgaggccga

ggccaaggcggacctccagaaagtgctggagctggagccgtccatgcagaaggcggtgcgcaggg

agctgaggctgctggagaaccgcatggcggagaagcaggaggaggagcggctgcgctgccgcaac

atgctgagccagggggccacgtggtcccccgcggagccacccgcagagccacctgcagagtcatc

cacagagccacccgcagagccacctgcagagccacctgcagagctaaccttgaccccggggcacc
cactacagcactga

     (2) INFORMATION FOR SEQ ID NO:9:

5
         (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 15 bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

10
         (ii) MOLECULE TYPE: DNA (genomic)

         (ix) FEATURE:

            (A) NAME/KEY: AIPL1 Met79Thr Mutation

            (B) LOCATION: 77...81

            (D) OTHER INFORMATION: Thr 79 mutation

15
         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

           acc tcc acg cgg gtg   15

                Thr

     (2) INFORMATION FOR SEQ ID NO:10:

20
         (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 15 bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

25
         (ii) MOLECULE TYPE: DNA (genomic)

         (ix) FEATURE:

            (A) NAME/KEY: AIPL1 Trp88X mutation

            (B) LOCATION: 86...90

            (D) OTHER INFORMATION:

30
         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

           gag ttc tga tgc gac   15

                X

     (2) INFORMATION FOR SEQ ID NO:11:

Page 90

(i) SEQUENCE CHARACTERISTICS:

                (A) LENGTH: 15 bases

                (B) TYPE: nucleic acid

                (C) STRANDEDNESS: single

5   (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (ix) FEATURE:

                (A) NAME/KEY: AIPL1 Val96Ile mutation

                (B) LOCATION: 94...98

10   (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

                acg ggg atc tac ccc   15

                        Ile

15   (2) INFORMATION FOR SEQ ID NO:12:

        (i) SEQUENCE CHARACTERISTICS:

                (A) LENGTH: 15 bases

                (B) TYPE: nucleic acid

                (C) STRANDEDNESS: single

20   (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic)

        (ix) FEATURE:

                (A) NAME/KEY: AIPL1 Thr124Ile mutation

                (B) LOCATION:

25   (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

                gac ccc ata gag tgg   15

                        Ile

30   (2) INFORMATION FOR SEQ ID NO:13:

        (i) SEQUENCE CHARACTERISTICS:

                (A) LENGTH: 15 bases

                (B) TYPE: nucleic acid

                (C) STRANDEDNESS: single

```
            (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: DNA (genomic)
     (ix) FEATURE:
            (A ) NAME/KEY: AIPL1 Pro376Ser mutation
            (B) LOCATION:
            (D) OTHER INFORMATION:
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:
            cca ccc tcg tcc cca                          15
                      Ser


(2) INFORMATION FOR SEQ ID NO:14:
     (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 15 bases
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: DNA (genomic)
     (ix) FEATURE:
            (A ) NAME/KEY: AIPL1 Gln163X mutation
            (B) LOCATION:
            (D) OTHER INFORMATION:
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:
            gat tac tag agg gag                          15
                      X


(2) INFORMATION FOR SEQ ID NO:15:
     (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 15 bases
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: DNA (genomic)
     (ix) FEATURE:
            (A ) NAME/KEY: AIPL1 Ala197Pro mutation
```

Page 92

```
        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

        gag  gag  ccc  tct  tcc                          15

                    Lys


(2)  INFORMATION FOR SEQ ID NO:16:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 15 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A ) NAME/KEY: AIPL1 Trp278X mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

        gag  gtg  tga  aat  gag                          15

                    X


(2)  INFORMATION FOR SEQ ID NO:17:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 15 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A ) NAME/KEY: AIPL1 IVS2-2A->G mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

        tcc  cca  cgg  cac  acg                          15
```

Page 93

(2) INFORMATION FOR SEQ ID NO:18:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 15 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Glu262Ser mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

        cac cca agt gcg cgg   15

                Ser

(2) INFORMATION FOR SEQ ID NO:19:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 15 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Arg302Leu mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

        gcg gtg ctc agg gag   15

                Leu

(2) INFORMATION FOR SEQ ID NO:20:

    (i) SEQUENCE CHARACTERISTICS:

Page 94

(A) LENGTH: 13 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

5   (ii) MOLECULE TYPE: DNA (genomic)

            (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 Pro351del12 mutation

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

10   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

                    g   cca   ccc   aca   gca   13

                            del TGCAGAGCCACC

      (2) INFORMATION FOR SEQ ID NO:21:

            (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 15 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

20   (ii) MOLECULE TYPE: DNA (genomic)

            (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 Cys239Arg mutation

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

25   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

                    tgc   cag   cgc   ctg   ctg   15

                            Arg

      (2) INFORMATION FOR SEQ ID NO:22:

30   (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 20 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

Page 95

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

    (A) NAME/KEY: AIPL1 Ala336del2 mutation

    (B) LOCATION:

    (D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

    t   ccc gca gcc acc   13

        del AG

(2) INFORMATION FOR SEQ ID NO:23:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Cys42X mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

        atg aaa tga gat gag   15

            X

(2) INFORMATION FOR SEQ ID NO:24:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Leu257del9 mutation

        (B) LOCATION:

(D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

gat att cac cca   12

del CTCCGGCAC

(2) INFORMATION FOR SEQ ID NO:25:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Val33ins8 mutation

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

gac tag gtg atc ttg tga tct

ins GTGATCTT

(2) INFORMATION FOR SEQ ID NO:26:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A)   NAME/KEY: AIPL1   IVS1-9G->A   Benign Variants/Polymorphisms

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

CTC AGT GAC TAG

G->A

(2) INFORMATION FOR SEQ ID NO:27:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 IVS2+66G->C Benign Variants/Polymorphisms

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

        TTT GCC GGG CTG

            G->C

(2) INFORMATION FOR SEQ ID NO:28:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 IVS2-88C->T Benign Variants/Polymorphisms

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

        TCC TCT CAG GAG

            C->T

(2) INFORMATION FOR SEQ ID NO:29:

    (i) SEQUENCE CHARACTERISTICS:

       (A) LENGTH: 20 bases

       (B) TYPE: nucleic acid

       (C) STRANDEDNESS: single

       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

       (A   )   NAME/KEY: AIPL1   IVS2-14G->A   Benign Variants/Polymorphisms

       (B) LOCATION:

       (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

       ATC   CAT   TTA   TCC

          G->A

(2) INFORMATION FOR SEQ ID NO:30:

    (i) SEQUENCE CHARACTERISTICS:

       (A) LENGTH: 20 bases

       (B) TYPE: nucleic acid

       (C) STRANDEDNESS: single

       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:

       (A   )   NAME/KEY: AIPL1   IVS2-10A->C   Benign Variants/Polymorphisms

       (B) LOCATION:

       (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

       CGT   TTC   TCC   CCA

          A->C

(2) INFORMATION FOR SEQ ID NO:31:

    (i) SEQUENCE CHARACTERISTICS:

Page 99

(A) LENGTH: 20 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

5   (ii) MOLECULE TYPE: DNA (genomic)

           (ix) FEATURE:

                    (A   )   NAME/KEY: AIPL1   IVS3-25T->C   Benign
                    Variants/Polymorphisms

                    (B) LOCATION:

10   (D) OTHER INFORMATION:

           (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

                    CTG CCC CAC TGA

                              T->C

15   (2) INFORMATION FOR SEQ ID NO:32:

           (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 20 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

20   (ii) MOLECULE TYPE: DNA (genomic)

           (ix) FEATURE:

                    (A   )   NAME/KEY: AIPL1   IVS3-21T->C   Benign
                    Variants/Polymorphisms

25   (B) LOCATION:

                    (D) OTHER INFORMATION:

           (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

                    CCT CAC CGA CCT

                              T->C

30

      (2) INFORMATION FOR SEQ ID NO:33:

           (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 20 bases

                    (B) TYPE: nucleic acid

Page 100

(C) STRANDEDNESS: single

          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (ix) FEATURE:

          (A   )   NAME/KEY: AIPL1   IVS5+18G->A   Benign

          Variants/Polymorphisms

          (B) LOCATION:

          (D) OTHER INFORMATION:

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

          AGG   AGC   GGA   CAG

                G->A

(2) INFORMATION FOR SEQ ID NO:34:

     (i) SEQUENCE CHARACTERISTICS:

          (A) LENGTH: 20 bases

          (B) TYPE: nucleic acid

          (C) STRANDEDNESS: single

          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (ix) FEATURE:

          (A   )   NAME/KEY: AIPL1   Asp90His   Benign

          Variants/Polymorphisms

          (B) LOCATION:

          (D) OTHER INFORMATION:

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

          TGG   TGC   CAC   ACC

                      His

(2) INFORMATION FOR SEQ ID NO:35:

     (i) SEQUENCE CHARACTERISTICS:

          (A) LENGTH: 20 bases

          (B) TYPE: nucleic acid

          (C) STRANDEDNESS: single

          (D) TOPOLOGY: linear

Page 101

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

    (A   )   NAME/KEY: AIPL1   Phe37Phe   Benign Variants/Polymorphisms

    (B) LOCATION:

    (D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

    CAT   TTC   CGC   ACC

        Phe

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

    (A) LENGTH: 20 bases

    (B) TYPE: nucleic acid

    (C) STRANDEDNESS: single

    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

    (A   )   NAME/KEY: AIPL1   Ser78Ser   Benign Variants/Polymorphisms

    (B) LOCATION:

    (D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

    ACC   TCT   ATG   CGG

        Ser

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

    (A) LENGTH: 20 bases

    (B) TYPE: nucleic acid

    (C) STRANDEDNESS: single

    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

Page 102

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(A    )    NAME/KEY:    AIPL1    Cys89Cys    Benign
Variants/Polymorphisms
(B) LOCATION:
(D) OTHER INFORMATION:
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:
     TGG    TGT    GAC    ACC
            Cys


(2)  INFORMATION FOR SEQ ID NO:38:
        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 20 bases
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear
        (ii) MOLECULE TYPE: DNA (genomic)
        (ix) FEATURE:
            (A    )    NAME/KEY:    AIPL1    Leu100Leu    Benign
            Variants/Polymorphisms
            (B) LOCATION:
            (D) OTHER INFORMATION:
        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:
             ATC    CTG    TCC    CGG
                    Leu


(2)  INFORMATION FOR SEQ ID NO:39:
        (i) SEQUENCE CHARACTERISTICS:
            (A) LENGTH: 20 bases
            (B) TYPE: nucleic acid
            (C) STRANDEDNESS: single
            (D) TOPOLOGY: linear
        (ii) MOLECULE TYPE: DNA (genomic)
        (ix) FEATURE:
            (A    )    NAME/KEY:    AIPL1    His172His    Benign
            Variants/Polymorphisms
```

Page 103

(B) LOCATION:

          (D) OTHER INFORMATION:

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

          AAT   CAC   GAG   AAG

5   His

     (2) INFORMATION FOR SEQ ID NO:40:

          (i) SEQUENCE CHARACTERISTICS:

               (A) LENGTH: 20 bases

10   (B) TYPE: nucleic acid

               (C) STRANDEDNESS: single

               (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA (genomic)

          (ix) FEATURE:

15   (A   )   NAME/KEY: AIPL1   Pro217Pro   Benign
               Variants/Polymorphisms

               (B) LOCATION:

               (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

20   AAG   CCG   TGG   GAG

                     Pro

     (2) INFORMATION FOR SEQ ID NO:41:

          (i) SEQUENCE CHARACTERISTICS:

25   (A) LENGTH: 20 bases

               (B) TYPE: nucleic acid

               (C) STRANDEDNESS: single

               (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA (genomic)

30   (ix) FEATURE:

               (A   )   NAME/KEY: AIPL1   Asp255Asp   Benign
               Variants/Polymorphisms

               (B) LOCATION:

               (D) OTHER INFORMATION:

Page 104

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            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:
                 AGT  GAC  ATT  CTC
                 Asp


5       (2) INFORMATION FOR SEQ ID NO:42:
            (i) SEQUENCE CHARACTERISTICS:
                (A)  LENGTH: 20 bases
                (B)  TYPE: nucleic acid
                (C)  STRANDEDNESS: single
10              (D)  TOPOLOGY: linear
            (ii) MOLECULE TYPE: DNA Primer
            (ix) FEATURE:
                (A ) NAME/KEY: AIPL1 primer
                (B)  LOCATION:
15              (D)  OTHER INFORMATION:
            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:
                 5'-AAGAAAACCATTCTGCACGG-3'                    20


        (2) INFORMATION FOR SEQ ID NO:43:
20          (i) SEQUENCE CHARACTERISTICS:
                (A)  LENGTH: 19 bases
                (B)  TYPE: nucleic acid
                (C)  STRANDEDNESS: single
                (D)  TOPOLOGY: linear
25          (ii) MOLECULE TYPE: DNA Primer
            (ix) FEATURE:
                (A ) NAME/KEY: AIPL1 primer
                (B)  LOCATION:
                (D)  OTHER INFORMATION:
30          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:
                 5'-TGCAGCTCGTCCAGGTCCT-3'                     19


        (2) INFORMATION FOR SEQ ID NO:44:
            (i) SEQUENCE CHARACTERISTICS:
```

(A) LENGTH: 17 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: Primer DNA

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 primer

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

                    5'-GACACCTCCCTTTCTCC-3'   17

     (2) INFORMATION FOR SEQ ID NO:45:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 18 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: Primer DNA (genomic) human

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 primer

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

                    5'-GCTGGGGCTGCCTGGCTG-3'   18

     (2) INFORMATION FOR SEQ ID NO:46:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 20 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: Primer DNA (genomic) human

          (ix) FEATURE:

                              Page 106

(A) NAME/KEY: AIPL1 Primer

(B) LOCATION:

(D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

5'-CCGAGTGATTACCAGAGGGA-3'   20

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Primer DNA (genomic) human

(ix) FEATURE:

(A) NAME/KEY: AIPL1 Primer

(B) LOCATION:

(D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

5'-TGAGCTCCAGCACCTCATAG-3'   20

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 bases

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Primer DNA (genomic) human

(ix) FEATURE:

(A) NAME/KEY: AIPL1 primer

(B) LOCATION:

(D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

5'-ACGCAGAGGTGTGGAATG-3'   18

Page 107

(2) INFORMATION FOR SEQ ID NO:49:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 19 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: Primer DNA (genomic) human

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 Primer

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

        5'-AAAAAGTGACACCACGATC-3'   19

(2) INFORMATION FOR SEQ ID NO:50:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 34 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: cDNA (genomic) human

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 gene exon/intron donor splice site

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

        CGGATCCCGAgtgagtggggccctccggagcaga   34

(2) INFORMATION FOR SEQ ID NO:51:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 35 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

Page 108

(D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: cDNA

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene exon/intron Acceptor

                    splice site

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

                    cagagtgcaccgtctcggtgactagGTGATCTTTC   35

     (2) INFORMATION FOR SEQ ID NO:52:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 35 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA (genomic) human

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene exon/intron Donor splice

                    site

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

                    CSACACCATCgtaagtaggccctgcgcgcctgtct   35

     (2) INFORMATION FOR SEQ ID NO:53:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 35 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA (genomic) human

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene exon/intron Acceptor

Page 109

splice site

            (B) LOCATION: 17p13.1

            (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

5   gccatccatccgtttatccccacagCACACGGGGG   35

    (2) INFORMATION FOR SEQ ID NO:54:

        (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 35 bases

10   (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic) human

        (ix) FEATURE:

15   (A) NAME/KEY: AIPL1 gene exon/intron Donor splice
            site

            (B) LOCATION:

            (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

20   GCTGCTGCAGgtggggctggggttggcagggctgg   35

    (2) INFORMATION FOR SEQ ID NO:55:

        (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 6689 bases

25   (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: cDNA

        (ix) FEATURE:

30   (A) NAME/KEY: AIPL1 gene exon/intron Acceptor
            splice site

            (B) LOCATION:

            (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

                        Page 110

cactgacctgcagctctggggccagGTTGATGCCC   35

(2) INFORMATION FOR SEQ ID NO:56:
     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 35 bases
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: cDNA
     (ix) FEATURE:
          (A) NAME/KEY: AIPL1 gene exon/intron Donor splice
          site
          (B) LOCATION:
          (D) OTHER INFORMATION:
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:
          GCAGACCAAGgtcagaggccgctggccacggggtg   35

(2) INFORMATION FOR SEQ ID NO:57:
     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 35 bases
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: cDNA
     (ix) FEATURE:
          (A) NAME/KEY: AIPL1 gene exon/intron Acceptor
          splice site
          (B) LOCATION:
          (D) OTHER INFORMATION:
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:
          catggctgaccttctccctgggcagGAGAAGCCRT   35

(2) INFORMATION FOR SEQ ID NO:58:
     (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic) human

        (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene exon/intron Donor splice

             site

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

             CACCACCCAGgtgcgcggggctgcaggggcggaca   35

(2) INFORMATION FOR SEQ ID NO:59:

        (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 35 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA (genomic) human

        (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene exon/intron Acceptor

             splice site

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

             gctggatgctccctgctccccacagGCATCGTGAA   35

(2) INFORMATION FOR SEQ ID NO:60:

        (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 18 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

Page 112

```
              (D) TOPOLOGY: linear
         (ii) MOLECULE TYPE: DNA Primer
         (ix) FEATURE:
              (A ) NAME/KEY: AIPL1 gene Exon 1 Primer
              (B) LOCATION: 240
              (D) OTHER INFORMATION:
         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:
                    5'-ggacacctccctttctcc-3'                    18


         (2) INFORMATION FOR SEQ ID NO:61:
              (i) SEQUENCE CHARACTERISTICS:
                   (A) LENGTH: 18 bases
                   (B) TYPE: nucleic acid
                   (C) STRANDEDNESS: single
                   (D) TOPOLOGY: linear
              (ii) MOLECULE TYPE: DNA Primer
              (ix) FEATURE:
                   (A ) NAME/KEY: AIPL1 gene Exon 1 Primer
                   (B) LOCATION: 240
                   (D) OTHER INFORMATION:
              (xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:
                        5'-gctggggctgcctggctg-3'                18


         (2) INFORMATION FOR SEQ ID NO:62:
              (i) SEQUENCE CHARACTERISTICS:
                   (A) LENGTH: 20 bases
                   (B) TYPE: nucleic acid
                   (C) STRANDEDNESS: single
                   (D) TOPOLOGY: linear
              (ii) MOLECULE TYPE: DNA Primer
              (ix) FEATURE:
                   (A ) NAME/KEY: AIPL1 gene Exon 2 Primer
                   (B) LOCATION: 297
                   (D) OTHER INFORMATION:
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Page 113

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

    5'-gggccttgaacagtgtgtct-3'   20

(2) INFORMATION FOR SEQ ID NO:63:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 19 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA Primer

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 gene Exon 2 Primer

        (B) LOCATION: 297

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

        5'-tttcccgaaacacagcagc-3'   19

(2) INFORMATION FOR SEQ ID NO:64:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 18 bases

        (B) TYPE: nucleic acid

        (C) STRANDEDNESS: single

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA Primer

    (ix) FEATURE:

        (A) NAME/KEY: AIPL1 gene Exon 3 Primer

        (B) LOCATION: 364

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

        5'-agtgagggagcaggattc-3'   18

(2) INFORMATION FOR SEQ ID NO:65:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 20 bases

(B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA Primer

5   (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene Exon 3 Primer

                    (B) LOCATION: 364

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

10   5'-tgcccatgatgcccgctgtc-3'   20

     (2) INFORMATION FOR SEQ ID NO:66:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 18 bases

15   (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA Primer

          (ix) FEATURE:

20   (A) NAME/KEY: AIPL1 gene Exon 4 Primer

                    (B) LOCATION: 315

                    (D) OTHER INFORMATION:

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

                            5'-tttcgggtctctgatggg-3'   18

25
     (2) INFORMATION FOR SEQ ID NO:67:

          (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 17 bases

                    (B) TYPE: nucleic acid

30   (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

          (ii) MOLECULE TYPE: DNA Primer

          (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene Exon 4 Primer

(B) LOCATION: 315

                    (D) OTHER INFORMATION:

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

                        5'-gcaggctccccagagtc-3'   17

        (2) INFORMATION FOR SEQ ID NO:68:

            (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 19 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: DNA Primer

            (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene Exon 5 Primer

                    (B) LOCATION: 279

                    (D) OTHER INFORMATION:

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

                        5'-gcagctgcctcaggtcatg-3'   19

        (2) INFORMATION FOR SEQ ID NO:69:

            (i) SEQUENCE CHARACTERISTICS:

                    (A) LENGTH: 18 bases

                    (B) TYPE: nucleic acid

                    (C) STRANDEDNESS: single

                    (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: DNA Primer

            (ix) FEATURE:

                    (A) NAME/KEY: AIPL1 gene Exon 5 Primer

                    (B) LOCATION: 279

                    (D) OTHER INFORMATION:

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

                        5'-gtggggtggaaagaaaag-3'   18

        (2) INFORMATION FOR SEQ ID NO:70:

                            Page 116

(i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 18 bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

5   (D) TOPOLOGY: linear

       (ii) MOLECULE TYPE: DNA Primer

       (ix) FEATURE:

            (A) NAME/KEY: AIPL1 gene Exon 6 Primer

            (B) LOCATION: 497

10   (D) OTHER INFORMATION:

       (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

            5'-ctgggaagggagctgtag-3'   18

    (2) INFORMATION FOR SEQ ID NO:71:

        (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 19 bases

            (B) TYPE: nucleic acid

            (C) STRANDEDNESS: single

            (D) TOPOLOGY: linear

20   (ii) MOLECULE TYPE: DNA Primer

       (ix) FEATURE:

            (A) NAME/KEY: AIPL1 gene Exon 6 Primer

            (B) LOCATION: 497

            (D) OTHER INFORMATION:

25   (xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

            5'-aaaagtgacaccacgatcc-3'   19

    (2) INFORMATION FOR SEQ ID NO:72:

        (i) SEQUENCE CHARACTERISTICS:

30   (A) LENGTH: 444 amino acids

            (B) TYPE: amino acid

            (D) TOPOLOGY: linear

       (ii) MOLECULE TYPE: protein

       (ix) FEATURE:

Page 117

(A) NAME/KEY: *Human* Aipl1

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

5   M D A A L L L N V E G V K K T I L H G G T G E L P N F I T G S R V I F H F R T M K C D E
    E R T V I D D S R Q V G Q P M H I I I G N M F K L E V V W E I L L T S M R V H E V A E F W C D T I H T G V Y P I L S R
    S L R Q M A Q G K D P T E W H V H T C G L A N M F A Y H T L G Y E D L D E L Q K E P Q P L V F V I E L L Q V D A P S
    D Y Q R E T W N L S N H E K M K A V P V L H G E G N R L F K L G R Y E E A S S K Y Q E A I I C L R N L Q T K E K P W
    E V Q W L K L E K M I N T L I L N Y C Q C L L K K E E Y Y E V L E H T S D I L R H H P G I V K A Y Y V R A R A H A E
10 V W N E A E A K A D L Q K V L E L E P S M Q K A V R R E L R L L E N R M A E K Q E E E R L X C R N M L S Q G A T Q P
    P A E P P T E P P A Q S S T E P P A E P P T A P S A E L S A G P P A E P A T E P P P S P G H S L Q H

                (2) INFORMATION FOR SEQ ID NO:73:

                    (i) SEQUENCE CHARACTERISTICS:

                        (A) LENGTH: 444 amino acids

                        (B) TYPE: amino acid

                        (D) TOPOLOGY: linear

                    (ii) MOLECULE TYPE: protein

                    (ix) FEATURE:

                        (A) NAME/KEY: *Chimpansee* Aipl1

                        (B) LOCATION:

                        (D) OTHER INFORMATION:

                    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

    MDAALLLNVEGVKKTILHGGTGELPNFITGSRVIFHFRTMKCDEERTVIDDSRQVGQPMHIIIGN
25 MFKLEVVWEILLTSMRVHEVAEFWCDTIHTGVYPILSRSLRQMAQGKDPTEWHVHTCGLANMFAYH
    TLGYEDLDELQKEPQPLVFVIELLQVDAPSDYQRETWNLSNHEKMKAVPVLHGEGNRLFKLGRYE
    EASSKYQEAIICLRNLQTKEKPWEVQWLKLEKMINTLILNYCQCLLKKEEYYEVLEHTSDILRHH
    PGIVKAYYVRARAHAEVWNEAEAKADLRKVLELEPSMQKAVRRELRLLENRMAEKQEEERLRCRN
    MLSQGATQPPAEPPTEPPAQSSTEPPAEPPPAPSAELSAGPPAETATEPPPSPGHSLQH

30

                (2) INFORMATION FOR SEQ ID NO:74:

                    (i) SEQUENCE CHARACTERISTICS:

                        (A) LENGTH: 444 amino acids

                        (B) TYPE: amino acid

                                Page 118

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(ix) FEATURE:

    (A) NAME/KEY: *Baboon* Aipl1

    (B) LOCATION:

    (D) OTHER INFORMATION:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

MDAALLLNVEGVKKTILHGGTGELPNFITGSRVIFHFRTMKCDEERTVIDDSRQVDQPMHIIIGN

MFKLEVWEILLTSMRVHEVAEFWCDTIHTGVYPILSRSLRQMAQGKDPTEWHVHTCGLANMFAYH

TLGYEDLDELQKEPQPLIFVIELLQVDAPSDYQRETWNLSNHEKMKVVPVLHGEGNRLFKLGRYE

EASSKYQEAIICLRNLQTKEKPWEVQWLKLEKMINTLTLNYCQCLLKKEEYYEVLEHTSDILRHH

PGIVKAYYVRARAHAEVWNEAEAKADLQKVLELEPSMQKAVRRELRLLENRMAEKQEEERLRCRN

MLSQGATQPPTEPPAEPHTAPPAELSTGPPAEPPAELPLSPGHSLQH

(2) INFORMATION FOR SEQ ID NO:75:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 444 amino acids

        (B) TYPE: amino acid

        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: protein

    (ix) FEATURE:

        (A) NAME/KEY: *Cow* Aipl1

        (B) LOCATION:

        (D) OTHER INFORMATION:

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

MDATLLLNVEGIKKTILHGGTGDLPNFITGARVTFHFRTMKCDEERTVIDDSKQVGHPMHIIIGN

MFKLEVWEILLTSMRVSEVAEFWCDTIHTGVYPILSRSLRQMAEGKDPTEWHVHTCGLANMFAYH

TLGYEDLDELQKEPQPLIFIIELLQVEAPSQYQRETWNLNNQEKMQAVPILHGEGNRLFKLGRYE

EASNKYQEAIVCLRNLQTKEKPWEVQWLKLEKMINTLILNYCQCLLKKEEYYEVLEHTSDILRHH

PGIVKAYYVRARAHAEVWNEAEAKADLEKVLELEPSMRKAVQRELRLLENRLEEKREEERLRCRN

MLG

    (2) INFORMATION FOR SEQ ID NO:76:

        (i) SEQUENCE CHARACTERISTICS:

            (A) LENGTH: 444 amino acids

Page 119

(B) TYPE: amino acid

                    (D) TOPOLOGY: linear

            (ii) MOLECULE TYPE: protein

            (ix) FEATURE:

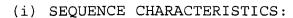   (A) NAME/KEY: *Mouse* Aipl1

                    (B) LOCATION:

                    (D) OTHER INFORMATION:

            (xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

MDVSLLLNVEGVKKTILHGGTGELPNFITGSRVTFHFRTMKCDEERTVIDDSKQVGQPMSIIIGN

MFKLEVWETLLTSMRLGEVAEFWCDTIHTGVYPMLSRSLRQVAEGKDPTSWHVHTCGLANMFAYH

TLGYEDLDELQKEPQPLVFLYELLQVEAPNEYQRETWNLNNEERMQAVPLLHGEGNRLYKLGRYD

QAATKYQEAIVCLRNLQTKEKPWEVEWLKLEKMINTLILNYCQCLLKKEEYYEVLEHTSDILRHH

PGIVKAYYMRARAHAEVWNAEEAKADLEKVLELEPSMRKAVLRELRLLESRLADKQEEERQRCRS

MLG

            (2) INFORMATION FOR SEQ ID NO:77:

                    (i) SEQUENCE CHARACTERISTICS:

                            (A) LENGTH: 444 amino acids

                            (B) TYPE: amino acid

                            (D) TOPOLOGY: linear

                    (ii) MOLECULE TYPE: protein

                    (ix) FEATURE:

                            (A) NAME/KEY: *Rhesus Monkey* Aipl1

                            (B) LOCATION:

                            (D) OTHER INFORMATION:

                    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

MDAALLLNVEGVKKTILHGGTGELPNFITGSRVIFHFRTMKCDEERTVIDDSRQVDQPMHIIIGN

MFKLEVWEILLTSMRVHEVAEFWCDTIHTGVYPILSRSLRQMAQGKDPTEWHVHTCGLANMFAYH

TLGYEDLDELQKEPQPLIFVIELLQVDAPSDYQRETWNLSNHEKMKVVPVLHGEGNRLFKLGRYE

EASSKYQEAIICLRNLQTKEKPWEVQWLKLEKMINTLTLNYCQCLLKKEEYYEVLEHTSDILRHH

PGIVKAYYVRARAHAEVWNEAEAKADLQKVLELEPSMQKAVRRELRLLENRMAEKQEEERLRCRN

MLSQGATQPPAEPPAQPPTAPPAELSTGPPADPPAEPPTAPPAELSTGPPAEPPAELPLSPGHSLQH

            (2) INFORMATION FOR SEQ ID NO:78:

                                    Page 120

(i) SEQUENCE CHARACTERISTICS:

　　　　　　　　(A) LENGTH: 444 amino acids

　　　　　　　　(B) TYPE: amino acid

　　　　　　　　(D) TOPOLOGY: linear

5　　　　　(ii) MOLECULE TYPE: protein

　　　　　　(ix) FEATURE:

　　　　　　　　(A) NAME/KEY: *Squirrel Monkey* Aipl1

　　　　　　　　(B) LOCATION:

　　　　　　　　(D) OTHER INFORMATION:

10　　　　(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

MDAALLLNVEGVKKTILHGGTGELPNFITGSRVIFHFRTMKCDEERTVIDDSREVGQPMHIIIGN

MFKLEVWEILLTSMRVREVAEFWCDTIHTGVYPILSRSLRQMAQGKDPTEWHVHTCGLANMFAYH

TLGYEDLDELQKEPQPLIFVIELLQVDAPSDYQRETWNLSNHEKMKVVPVLHGEGNRLFKLGRYE

EASSKYQEAIICLRNLQTKEKPWEVQWLKLEKMINTLILNYCQCLLKKEEYYEVLEHTSDILRHH

15　PGIVKAYYVRARAHAEVWNEAEAKADLQKVLELEPSMQKAVRRELRLLENRMAEKQEEERLRCRN

MLSQGATWSPAEPPAEPPAESSTEPPAEPPAEPPAELTLTPGHPLQH